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EXAMINER	
ABDI, AMARA	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/723,791	LAL ET AL.	
	Examiner	Art Unit	
	Amara Abdi	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 October 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-34* is/are pending in the application.

4a) Of the above claim(s) *3,5-7,9,10,15,17,18 and 21* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,4,8,11-14,16,19,20 and 22-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11/26/2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

2. In view of the Applicant's arguments, the rejection of claims 8, 29, and 30 under 35 U.S.C 112 is expressly withdrawn.

3. In view of the Applicant's arguments, the objection to specification is expressly withdrawn.

4. Applicant's arguments with respect to claims 1-2, 4, 8, 11-12, 13-14, 16, 19-20, 22, 23-26, 27-29, 30-31, 32-33, and 34 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-2, 4, 8, 11-12, 13-14, 16, 19-20, 22, 23-24, 27-29, 30-31, 32-33, and 34 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. While the claims recite a series of steps or acts to be performed, a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing (Reference the May 15, 2008 memorandum issued by Deputy Commissioner for Patent Examining Policy,

John J. Love, titled "Clarification of 'Processes' under 35 U.S.C. 101" – publicly available at USPTO.GOV, "memorandum to examining corp"). The instant claims neither transform underlying subject matter nor positively tie to another statutory category that accomplishes the claimed method steps, and therefore do not qualify as a statutory process. In order for a process to be "tied" to another statutory category, the structure of another statutory category should be positively recited in a step or steps significant to the basic inventive concept, and NOT just in association with statements of intended use or purpose, insignificant pre or post solution activity, or implicitly.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenfeld (US 6,748,098) in view of Platt et al. (US 6,973,210).

(1) Regarding claim 1:

Rosenfeld teaches an algebraic reconstruction of images, comprising:

accessing stored image data from a memory (col. 16, lines 35-37), the image data defining an input image (CT image) acquired using an imaging system (CT machine) (col. 6, lines 36-43);

determining a pixel sampling rate for the image data (col. 28, lines 46-50, and col. 31, lines 28-34);

determining a desired sampling rate (Nyquist rate), wherein the desired sampling rate is determined based at least partially on point-spread function of the imaging system or the frequency content of the image data (col. 31, col. 28-37) and (Example 3.13 of the Book “Fundamental of statistical processing: Estimation theory”);

comparing the pixel sampling rate to the desired sampling rate (col. 31, lines 31-32) and (Example 3.13 of the Book “Fundamental of statistical processing: Estimation theory”); and

However, Rosenfeld does not teach explicitly based on comparison, processing the image data by shrinking the input image if the pixel sampling rate is greater than the desired sampling rate.

Platt et al., in analogous environment, teaches the processing of the image data by shrinking (scaling) the input image data (col. 8, lines 15-16), if the pixel sampling rate is greater than the desired sampling rate (Nyquist rate) (col. 8, lines 10-12), based in comparison (col. 8, lines 1-12), (since the pixel sampling rate is greater than the desired sampling rate, that means the pixel sampling rate and Nyquist rate are compared, which read on limitation" based on comparison").

It is desirable to improve the resolution of images displayed on LCD display devices. The Platt et al. approach, where processing the image data by scaling the input image data if the pixel sampling rate is greater than the desired sampling rate is to achieve this goal. Therefore, it would have been obvious to one having ordinary skill in

the art at the time of the invention, to apply the Platt et al. teaching, where scaling the input image data if the pixel sampling rate is greater than the desired sampling rate, with the Rosenfeld teaching, because such combination improves the resolution of images displayed on LCD display devices (col. 2, lines 29-30).

(2) Regarding claims 8 and 24:

Rosenfeld teaches a method and an algebraic reconstruction of images, comprising:

accessing stored image data from a memory (col. 16, lines 35-37), the stored image data defining an input image (CT image) previously acquired by an imaging system (CT machine) using a first pixel sampling rate (col. 28, lines 46-50, and col. 31, lines 28-34);

determining a second pixel sampling rate for the image data (col. 31, col. 28-37), wherein the second sampling rate is a desired sampling rate (Nyquist rate) (col. 31, col. 28-37) and (Example 3.13 of the Book "Fundamental of statistical processing: Estimation theory");

However, Rosenfeld does not teach explicitly the calculating of a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate; and processing the image data by shrinking the input image defined by the image data based at least on the shrink parameter if the shrink parameter is greater than one.

Platt et al., in analogous environment, teaches the calculating of a shrink parameter (R=20, "20 times the pixel Nyquist rate") as a ratio of the first pixel sampling rate to the desired sampling rate (col. 8, lines 10-12), and processing the image data by

shrinking (scaling) the input image (col. 8, lines 15-16) defined by the image data based at least on the shrink parameter (ratio) if the shrink parameter is greater than one (R=20 >1 "20 times the pixel Nyquist rate") (col. 8, lines 10-12).

It is desirable to improve the resolution of images displayed on LCD display devices. The Platt et al. approach, where calculating a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate is to achieve this goal. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to apply the Platt et al. teaching, where calculating a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate, with the Rosenfeld teaching, because such combination improves the resolution of images displayed on LCD display devices (col. 2, lines 29-30).

(3) Regarding claim 16:

Rosenfeld teaches an algebraic reconstruction of images, comprising:

a memory circuit for storing image data (col. 16, lines 35-37), the image data defining an input image (CT image) acquired by a data acquisition system (CT machine) at a first pixel sampling rate (col. 28, lines 46-50, and col. 31, lines 28-34);

a processing circuit for accessing the image date (col. 16, lines 43-45) from the circuit memory circuit (col. 16, lines 35-37), determining a second pixel sampling rate for the image data (col. 31, col. 28-37), the second sampling rate being a desired sampling rate (Nyquist rate) (col. 31, col. 28-37) and (Example 3.13 of the Book "Fundamental of statistical processing: Estimation theory"),

However, Rosenfeld does not teach explicitly the calculating of a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate; and processing the image data by shrinking the input image defined by the image data based at least on the shrink parameter if the shrink parameter is greater than one.

Platt et al., in analogous environment, teaches the calculating of a shrink parameter (R=20, "20 times the pixel Nyquist rate") as a ratio of the first pixel sampling rate to the desired sampling rate (col. 8, lines 10-12), and processing the image data by shrinking (scaling) the input image (col. 8, lines 15-16) defined by the image data based at least on the shrink parameter (ratio) if the shrink parameter is greater than one (R=20 >1 "20 times the pixel Nyquist rate") (col. 8, lines 10-12),

It is desirable to improve the resolution of images displayed on LCD display devices. The Platt et al. approach, where calculating a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate is to achieve this goal. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to apply the Platt et al. teaching, where calculating a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate, with the Rosenfeld teaching, because such combination improves the resolution of images displayed on LCD display devices (col. 2, lines 29-30).

(4) Regarding claim 23:

Rosenfeld teaches an algebraic reconstruction of images, comprising:

means for accessing stored image data from a memory (col. 16, lines 35-37), the image data defining an input image (CT image) acquired using an imaging system (CT machine) (col. 6, lines 36-43);

means for determining a pixel sampling rate for the image data (col. 28, lines 46-50, and col. 31, lines 28-34);

means for determining a desired sampling rate (Nyquist rate), wherein the desired sampling rate is determined based at least partially on point-spread function of the imaging system or the frequency content of the image data (col. 31, col. 28-37) and (Example 3.13 of the Book "Fundamental of statistical processing: Estimation theory");

means for comparing the pixel sampling rate to the desired sampling rate (col. 31, lines 31-32) and (Example 3.13 of the Book "Fundamental of statistical processing: Estimation theory"); and

However, Rosenfeld does not teach explicitly means for determining a shrink parameter based upon comparison; and means for processing the image data by shrinking the input image if, based upon the comparison, the pixel rate is greater than the desired sampling rate.

Platt et al., in analogous environment, teaches the means for determining the shrink parameter (R=20, "20 times the pixel Nyquist rate") based upon comparison (col. 8, lines 1-12), and means for processing the image data by shrinking (scaling) the input image (col. 8, lines 15-16) if based upon the comparison (col. 8, lines 1-12), the pixel

sampling rate is greater than the desired sampling rate (Nyquist rate) (col. 8, lines 10-12),

It is desirable to improve the resolution of images displayed on LCD display devices. The Platt et al. approach, where determining the shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate is to achieve this goal. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to apply the Platt et al. teaching, where calculating a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate, with the Rosenfeld teaching, because such combination improves the resolution of images displayed on LCD display devices (col. 2, lines 29-30).

(5) Regarding claim 25:

Rosenfeld teaches a computer readable medium storing a computer program (col. 38, lines 54-56) for an algebraic reconstruction of images, comprising:

code stored on the computer readable medium encoding routines (col. 38, lines 54-56) for accessing stored image data from a memory (col. 16, lines 35-37), determining a pixel sampling rate for the image data (col. 28, lines 46-50, and col. 31, lines 28-34); determining a desired sampling rate (Nyquist rate) (col. 31, col. 28-37) and (Example 3.13 of the Book “Fundamental of statistical processing: Estimation theory”); comparing the pixel sampling rate to the desired sampling rate (col. 31, lines 31-32) and (Example 3.13 of the Book “Fundamental of statistical processing: Estimation theory”, and wherein the desired sampling rate is determined based at least partially on point-spread function of the imaging system or the frequency content of the image data (col.

31, col. 28-37) and (Example 3.13 of the Book “Fundamental of statistical processing: Estimation theory”);

However, Rosenfeld does not teach explicitly based on comparison, processing the image data by shrinking the input image if the pixel sampling rate is greater than the desired sampling rate.

Platt et al., in analogous environment, teaches the processing of the image data by shrinking (scaling) the input image data (col. 8, lines 15-16), if the pixel sampling rate is greater than the desired sampling rate (Nyquist rate) (col. 8, lines 10-12), based in comparison (col. 8, lines 1-12), (since the pixel sampling rate is greater than the desired sampling rate, that means the pixel sampling rate and Nyquist rate are compared, which read on limitation" based on comparison").

It is desirable to improve the resolution of images displayed on LCD display devices. The Platt et al. approach, where processing the image data by scaling the input image data if the pixel sampling rate is greater than the desired sampling rate is to achieve this goal. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to apply the Platt et al. teaching, where scaling the input image data if the pixel sampling rate is greater than the desired sampling rate, with the Rosenfeld teaching, because such combination improves the resolution of images displayed on LCD display devices (col. 2, lines 29-30).

(6) Regarding claim 26:

Rosenfeld teaches a computer readable medium storing a computer program (col. 38, lines 54-56) for an algebraic reconstruction of images, comprising:

code stored on the computer readable medium encoding routines (col. 38, lines 54-56) for accessing stored image data from a memory (col. 16, lines 35-37), the stored image data defining an input image (CT image) previously acquired by an imaging system (CT machine) (col. 6, lines 36-43) using a first pixel sampling rate (col. 28, lines 46-50, and col. 31, lines 28-34), determining a second sampling rate for the image data (Nyquist rate) (col. 31, col. 28-37) and (Example 3.13 of the Book "Fundamental of statistical processing: Estimation theory"); the second sampling rate being a desired sampling rate (Nyquist rate) (col. 31, col. 28-37);

However, Rosenfeld does not teach explicitly the calculating of a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate; and processing the image data by shrinking the input image defined by the image data based at least on the shrink parameter if the shrink parameter is greater than one.

Platt et al., in analogous environment, teaches the calculating of a shrink parameter (R=20, "20 times the pixel Nyquist rate") as a ratio of the first pixel sampling rate to the desired sampling rate (col. 8, lines 10-12), and processing the image data by shrinking (scaling) the input image (col. 8, lines 15-16) defined by the image data based at least on the shrink parameter (ratio) if the shrink parameter is greater than one (R=20 >1 "20 times the pixel Nyquist rate") (col. 8, lines 10-12),

It is desirable to improve the resolution of images displayed on LCD display devices. The Platt et al. approach, where calculating a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate is to achieve this goal. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the

invention, to apply the Platt et al. teaching, where calculating a shrink parameter as a ratio of the first pixel sampling rate to the desired sampling rate, with the Rosenfeld teaching, because such combination improves the resolution of images displayed on LCD display devices (col. 2, lines 29-30).

(7) Regarding claims 2 and 13:

Rosenfeld and Platt et al. teach the parental claim 1. Furthermore, Rosenfeld teaches the method of claim 1, wherein the desired sampling rate is Nyquist rate of sampling for the image (Rosenfeld: col. 31, lines 31-32).

(8) Regarding claim 4:

Rosenfeld and Platt et al. teach the parental claim 1. Furthermore, Rosenfeld teaches the method of claim 1, wherein the pixel sampling rate is determined (Rosenfeld: col. 28, lines 46-50, and col. 31, lines 28-34) based upon a display field of view (Rosenfeld: Figs. 9A-13D, col. 37, lines 44-45) and a size of pixels (size of Matrix) in the field of view (Rosenfeld: col. 18, lines 6-7). Furthermore, Platt et al. teaches the LCD display devices (Platt et al.: col. 2, lines 29-30).

(9) Regarding claim 14:

Rosenfeld and Platt et al. teach the parental claim 1. Furthermore, Rosenfeld teaches the method of claim 1, wherein the desired sampling rate is determined based at least partially on point-spread function of the imaging system, or the frequency content of the image data (Rosenfeld: col. 31, col. 28-37) and (Example 3.13 of the Book “Fundamental of statistical processing: Estimation theory”).

(10) Regarding claim 22:

Rosenfeld and Platt et al. teach the parental claim 16. Furthermore, Rosenfeld teaches the method of claim 16, wherein the data acquisition system is selected from a group consisting of a CT system (CT imager) (Rosenfeld: col. 6, lines 39-40).

(11) Regarding claim 27:

Rosenfeld and Platt et al. teach the parental claim 1. Furthermore, Platt et al. teach the method of claim 1, wherein shrinking (scaling) the input image (Platt: col. 8, lines 15-16 is at least partially based upon a shrink parameter (a ratio of the first pixel sampling rate to the desired sampling rate) (Platt: col. 8, lines 10-12)

(12) Regarding claim 28:

Rosenfeld and Platt et al. teach the parental claim 27. Furthermore, Platt et al. teach the method of claim 27, wherein the shrink parameter is a ratio of the pixel sampling rate to the desired sampling rate (Platt: col. 8, lines 10-12).

(13) Regarding claims 29, 30, and 32:

Rosenfeld and Platt et al. teach the parental claims 1, 8 and 16. Furthermore, Platt et al. teach the method of claims 1, 8, and 16, wherein processing the image data does not comprise shrinking the input image if the pixel sampling rate is less than the desired sampling rate (Platt: col. 8, lines 10-12), (the processing the image data does not comprise shrinking the input image if the pixel sampling rate is less than the desired sampling rate is obvious, because if the sampling rate is less than the Nyquist rate, the shrink parameter (ratio) will be less than 1).

(14) Regarding claim 34:

Rosenfeld and Platt et al. teach the parental claim 16. Furthermore, Rosenfeld teaches the system of claim 16, wherein the desired sampling rate is determined based at least partially on point-spread function of the imaging system or the frequency content of the image data (Rosenfeld: col. 31, col. 28-37) and (Example 3.13 of the Book "Fundamental of statistical processing: Estimation theory").

9. Claims 31 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rosenfeld and Platt et al., as applied to claims 8 and 16 above, and further in view of Blumberg (US 6,886,034).

(1) Regarding claims 31 and 33:

The combination Rosenfeld and Platt et al. teach the parental claims 8 and 16 above. However, the combination Rosenfeld and Platt et al. do not teach explicitly wherein shrinking the input image defined by the image data is further based upon a redundancy metric determined based upon a display filed of view and a size of pixels in the filed of view.

Blumberg, in analogous environment, teach the method and system for viewing scalable documents, wherein shrinking the input image (scaling the input image) (col. 7, lines 60-63) defined by the image data (photograph) (col. 7, lines 56) is further based upon a redundancy metric (sampling frequency) (col. 7, line 63) determined based upon a display filed of view (resolution) (col. 7, lines 64-65) and a size of pixels (size of original image) (col. 7, lines 61-62) in the filed of view (resolution) (col. 7, lines 64-65).

It is desirable to have a scalable document that can be reduced to any desired resolution. The Blumberg's approach, where scaling the image to a reduction in size of the original image, based on the sampling frequency is to achieve this goal. Therefore, it would have been obvious to one having ordinary skill in the art at the time of the invention, to apply the Blumberg's teaching, where scaling the image to a reduction in size of the original image, based on the sampling frequency, with the combination Rosenfeld and Platt et al., because such combination, makes a scalable document that can be reduced to any desired resolution, making the entire document scalable, text character, graphical objects, and raster images (col. 2, lines 21-24).

(2) Regarding claims 11 and 19:

The combination Rosenfeld, Platt et al., and Blumberg teach the parental claims 31 and 33. Furthermore, Rosenfeld teaches the method of claims 31 and 33, wherein processing the image data further comprises resampling the image data (Blumberg: col. 7, lines 36-38).

(3) Regarding claims 12 and 20:

The combination Rosenfeld, Platt et al., and Blumberg teach the parental claims 11 and 19. Furthermore, Rosenfeld teaches the method of claims 11 and 19, wherein the image data is resampled (Blumberg: col. 7, lines 36-38) to match the desired sampling rate (Blumberg: col. 31, lines 31-32).

Contact Information:

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Amara Abdi whose telephone number is (571)270-1670. The examiner can normally be reached on Monday through Friday 8:00 Am to 4:00 PM E.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Amara Abdi/
Examiner, Art Unit 2624

/Jingge Wu/
Supervisory Patent Examiner, Art Unit 2624